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Saving for Health:

Prefunding Health Care for an Older Canada

William B.P. Robson

In this issue...

Demographic change will raise the cost of Canada's publicly funded health programs while depressing the growth of the tax base that funds them. Prefunding a portion of future health spending can spread its cost more evenly among generations. While prefunding sufficient to stabilize the cost of entire provincial health budgets would be very hard, stabilizing the cost of individual programs such as drug benefits for seniors is affordable. Setting funds aside now, preferably financed by individual premiums or consumption taxes, would make Canadian health care easier to sustain in the face of an aging population.

The Study in Brief

An aging population presents a challenge to publicly funded health-care systems. The elderly will be heavier users of future health services, while a slower-growing population of working age will slowly shrink the tax base, crimping the government revenue needed to fund health care. One response to a potentially unsustainable rise in the tax cost of health programs is prefunding on a scale sufficient to stabilize that cost. As with the recent reforms to the Canada and Quebec Pension Plans, early increases in contributions to government health-care programs could provide funds that, along with investment returns, would contain the impact of future spending increases on tomorrow's taxpayers. This paper combines demographic projections for Canada and its provinces with distributions of health spending by age and sex to estimate the future cost of several health programs and the amount of prefunding that would be necessary to stabilize their costs over a 50-year period. Although prefunding on a scale that would stabilize the cost of an entire provincial health budget would require daunting upfront investments, targeted approaches such as a partially prefunded federal Seniors Health Grant or a stabilization account for the Ontario Drug Benefit program appear feasible. The paper also canvasses complementary reforms that would separate funding through such accounts from service provision and argues that the promotion of economic growth in the long run and the need for tax bases that are robust in the face of demographic change favour funding the required investments from individual premiums or consumption taxes rather than income or payroll taxes.

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The Spring 2002 round of provincial budgets provided fresh evidence that rising health spending is putting relentless pressure on other government programs and on provincial taxes. For all the efforts to find more efficiency in public health-care programs, when the numbers are in, provincial health spending in 2002 will probably show a 36-percent increase from the level of five years ago, a 6.3-percent compound annual rate of growth. Although some of the increase represents catch-up after several years of restraint in the mid-1990s, fiscal pressure from health budgets is not a temporary problem. While increased labour and other costs, as well as the greater volumes of services provided, are clearly contributing to rising public health spending, the aging of Canada's population presents an important additional challenge.

The Impact of Aging on Health Budgets

This challenge has two facets. One arises from the fact that absorption of health services is strongly correlated with age (Table 1). As the average age of the Canadian population rises, so too — other things being equal — will its use of health services. Many commentators on this phenomenon concur that the impact of population aging on aggregate health budgets is likely to raise their growth rate in the coming decades by about one percent annually above the path that inflation and increased utilization would otherwise produce.[1]

Fiscal pressure from health budgets is not a temporary problem.

Although this aging-related pressure on spending is not very different from past experience, the conclusion that aging is not a problem for health budgets is unwarranted, because a second fiscal impact from population aging will be markedly different in the future from what it was in the past. The movement of the baby-boom generation into retirement, with no offsetting influx of younger people into the workforce, will erode the tax base. It is well known that the ratio of Canadians above traditional working age to those in it will rise sharply over the coming decades (Table 2).[2] Although this development has already sparked some changes to the Canada and Quebec Pension Plans (C/QPP), its implications for health budgets are not yet sufficiently appreciated.

I am grateful to Bob Brown, Jack Mintz, Mark Mullins and other participants in a May 2002 seminar sponsored by the Royal Commission on the Future of Health Care in Canada for comments, and to Finn Poschmann and Yvan Guillemette for assistance with taxation and demographic statistics.

1 The projections in Robson (2001a) reflect an impact of aging of about one percentage point annually; Rachlis et al. (2001, 14) predict a similar impact of aging on health spending.

2 The population projections in this paper are from a model based on the International Labor Organization Population Projection Model (ILO 2002) applied at the provincial-territorial level. Key assumptions are: total fertility rates in each province and territory remain at their 2001 levels through the projection period; life expectancies at birth for both males and females improve at a rate that closely corresponds to Statistics Canada's medium assumption for improvement in life expectancy; net inter-provincial migration for each age and sex category decreases linearly from the 2001 figure to zero over five years, and net international migration for each age and sex category continues at the 1992–2001 average figure for the entire projection period.

Table 1: *Provincial Health Spending by Age, 2001*

	0–64 ($)	65+ ($)	65+ relative to 0–64 (Ratio)
Canada	1,418	7,546	5.3
Newfoundland	1,605	8,486	5.3
PEI	1,253	7,122	5.7
Nova Scotia	1,191	7,329	6.2
New Brunswick	1,355	7,481	5.5
Quebec	1,225	7,054	5.8
Ontario	1,412	7,493	5.3
Manitoba	1,529	7,671	5.0
Saskatchewan	1,493	6,683	4.5
Alberta	1,635	8,119	5.0
BC	1,565	8,325	5.3

Source: CIHI (2001); author's estimates.

Intergenerational Fairness and Sustainability

Demographically driven increases in the share of national income going into provincial health budgets over the coming half-century can be interpreted as an unfunded liability which, depending on increases in health-sector costs and service utilization, amounts to some 50-to-80 percent of national GDP — comparable in size to the combined debts of federal and provincial governments or to the unfunded liabilities of the C/QPP.[3] Table 3 shows updated estimates of this liability for each province and for the country as a whole, calculated on the relatively conservative assumption that utilization of health services per person of a given age and sex rises at the same rate as output per working-age person. The unfunded liability is a present value, calculated using a six-percent discount rate, of the amount by which health spending over the next 50 years, expressed as a share of national or provincial GDP, will exceed the 2002 value.[4]

Table 2: *Provincial Population by Age, 2000–2040*

	Population: 15–64 (000)			*Population: 65+ (000)*			*Population 65+ per 100 15–64*		
	2000	2020	2040	2000	2020	2040	2000	2020	2040
Canada	21,040	23,891	23,615	3,854	6,579	9,955	18.3	27.5	42.2
Newfoundland	381	348	272	63	115	152	16.4	33.0	55.8
PEI	93	94	84	18	29	38	19.7	30.6	45.6
Nova Scotia	645	646	563	125	204	280	19.4	31.5	49.7
New Brunswick	521	502	413	98	161	219	18.8	32.1	53.0
Quebec	5,114	5,254	4,804	943	1,626	2,219	18.4	30.9	46.2
Ontario	7,942	9,768	10,256	1,467	2,507	4,039	18.5	25.7	39.4
Manitoba	750	828	834	155	221	317	20.7	26.7	38.0
Saskatchewan	653	701	703	148	189	261	22.7	26.9	37.1
Alberta	2,078	2,420	2,297	303	586	974	14.6	24.2	42.4
BC	2,795	3,257	3,310	530	932	1,439	18.9	28.6	43.5

Source: CANSIM; C.D. Howe Institute projections.

3 See Robson (2001a). These calculations take into account both the net increase in health utilization arising from aging and the depressing effect on incomes from relatively slow growth of the working-age population. They are conservative in the sense that they assume future increases in utilization rates and health-sector cost increases that, expressed relative to overall productivity growth and inflation, are in line with historical experience. Scenarios in which, for example, biotechnology research turns many more types of cancer into manageable diseases would produce much higher numbers

4 The present value is taken over a 50-year period. As discussed below, this seems an appropriate timeframe over which to evaluate the liability implied by a political promise, since it is roughly the life expectancy of the average-aged Canadian.

Table 3: ***Present Value of Increased Provincial Health Spending Over Next 50 Years***

	$ bn	% of GDP
Canada	639	56
Newfoundland	15	101
PEI	2	63
Nova Scotia	19	72
New Brunswick	17	78
Quebec	155	65
Ontario	224	48
Manitoba	15	42
Saskatchewan	12	33
Alberta	74	46
BC	103	75

Source: Author's calculations as explained in Robson (2001a).

Although factors such as the maturation of tax-deferred pension plans and higher wages, resulting from scarcer labour, may exert a positive influence on government budgets as the population ages, the overall fiscal impact of aging is likely to be strongly negative.[5] Recent work at the Organisation of Economic Cooperation and Development (OECD) indicates that the total impact of aging on the budgets of Canada's federal and provincial governments over the next half century will amount to a shift in primary budget balances — tax revenues less program expenditures — from surplus toward deficit of almost nine percentage points of GDP (Dang et al., 2001, 27).

As with the C/QPP, the unfunded liability in health care means that the current generation of young Canadians and those that follow it will be asked to pay a far higher price to sustain the publicly funded health system than the baby-boomers and their parents saw fit to contribute themselves.[6] This uneven intergenerational "contract" raises awkward ethical questions and it also has troubling practical implications.

The unfunded liability in health care means that young Canadians will be asked to pay a far higher price to sustain the publicly funded health system than the baby-boomers and their parents saw fit to contribute themselves.

If the resulting tax increases do not appear to those who pay them to be akin to a price for health services, they will likely depress the tax base by discouraging economic activity, or by pushing it underground or abroad. Even if the increases are clearly earmarked for health spending, and thus resemble a price for a service, it is not clear why younger Canadians — who were not consulted before being passed a bill that their elders could see coming — will happily agree to pay it in full. Rising tax rates that reduce the tax base or induce tomorrow's workers to vote for a lighter bill will make future health budgets harder to finance than they will be if policymakers begin redressing the imbalance in a timely way.

Addressing the Challenge through Partial Prefunding

Many possible responses to the pressure of aging on both the expenditure and revenue sides of government budgets exist. Aside from measures to curb demand or find more robust tax bases, the fact that the aging-related pressures on health budgets are foreseeable — in direction if not in precise magnitude — suggests one approach that was prefigured in the C/QPP reforms: partial prefunding.

5 Mérette (2002) has made both these points. But the buoying effect on the personal income-tax base of higher pension payments will be more than offset by the depressing effect of retirement itself. And if some of the more optimistic views about the wage-increasing impacts of scarcer workers are borne out, the implications for the affordability of health care, an industry in which labour costs loom very large, are essentially a wash.

6 Despite the strong attachment to their current health system shown in Canadians' answers to public opinion polls and their concerns about insufficient resources, such polls do not typically show strong support for higher taxes to remedy the shortfalls (Mendelsohn 2002, 11, 51).

The General Case for Prefunding

The general case for prefunding is the flip side of the criticisms of pay-as-you-go health-care financing just outlined. By obliging tomorrow's elderly to prepay some of the costs of their future care while they are still more economically active, prefunding can spread the cost of public programs that are strongly geared to age more equitably across the population. This benefit is especially attractive in situations where rates of return on investment exceed economic growth rates, as is typical through history and as has recently been the case.[7] And it is particularly compelling in the face of the demographic cycle of the baby boom and bust that Canada faces.

The Quebec Commission of Study on Health and Social Services (the Clair Commission) has recently endorsed this logic. It argued that Canada is increasingly out of step with international practice in not making formal provision for certain predictable health-related expenses associated with aging, noting that Austria, Germany, France, Luxembourg and Japan have established compulsory plans to fund various home support services, residential and long-term care services for the elderly.[8] The Commission proposed a new provincial plan in Quebec to cover a range of home and institutional care services for people suffering from long-term incapacity, to be prefunded from a dedicated tax on personal income deposited in an account administered by an arm's-length body (Quebec 2000, 181–85).

By obliging tomorrow's elderly to prepay some of the costs of their future care while they are still more economically active, prefunding can spread the cost of public programs that are strongly geared to age more equitably.

How Much Prefunding is Enough?

If the general case for prefunding is persuasive, specific proposals for prefunding the various publicly funded health services that exist in Canada need to confront some key questions. How much prefunding is enough? Are current delivery and payment practices compatible with prefunded arrangements? And where should governments look for the resources to make the up-front investments?

Looking first at the question of how far to go, it is safe to say that complete prefunding — that is, creating a pool of assets equal in size to the present value of a given future obligation — is probably neither desirable nor practical. The future obligations illustrated in Table 3 are too large for any conceivable saving program to try to match. What does merit attention, however, is prefunding sufficiently to

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7 The superiority of saving over pay-as-you-go financing in such circumstances is the same logic that resulted in the elimination of large government budget deficits during the 1990s (Robson and Scarth, 1997), and also underlies the requirement since the 1960s and 1970s that businesses should fund their pension obligations.

8 A familiar, though flawed example of such a practice is Part A of US Medicare, which provides coverage for hospital services from a payroll tax-financed trust fund similar in structure to the US Social Security system. (Part B of Medicare, supplementary medical insurance, is financed by user fees and general revenues.) The US social security system is a flawed example because the consolidation of its revenues and expenditures with the general budget of the US federal government means that there are no assets in the fund other than US government securities. What difference the structure of social security makes to US policymaking and private-sector decision-making is a matter of intense debate. A respectable case can be made that the notional accounts put an economically meaningless mask on a pay-as-you-go system.

contain the ongoing rise in tax rates associated with demographic change as it affects a given program.[9]

Before the recent C/QPP reforms, for example, Canada's mandatory employment-related pension plans ran essentially on a pay-as-you-go basis. As the ratio of beneficiaries to contributors rose over time, actuarial projections in the mid-1990s showed that contribution rates would need to rise from the then-current level of about 5.5 percent to more than 15 percent by the 2030s. By ramping contribution rates up faster and investing the resulting surpluses, the reforms aimed to contain the contribution rate to no more than 9.9 percent over a period of more than 60 years — an approach that had the signal virtue of being politically acceptable.

How long is the appropriate timeframe for thinking about stabilizing the tax cost of health-care programs? Because health-care obligations are not formally linked to contribution history as CPP obligations are, it is probably not appropriate to adopt as long a time-frame as is used for the pension plan. The promise to provide substantially the same health-care goods and services for substantially the same cost in terms of tax rates going forward is an implicit one between politicians and voters. For this reason, I use a time-frame that approximates the average life expectancy of every Canadian now alive as a horizon over which to judge whether a stabilization program would inspire confidence — 50 years.[10]

We should prefund sufficiently to contain the ongoing rise in tax rates associated with specific programs.

What about the benchmark for judging whether a given prefunding exercise is really likely to stabilize the cost of a program? Its success and consequent familiarity makes the benchmark for sustainability used in the CPP reforms attractive. The CPP adopted the ratio of projected assets in the plan in each year to projected expenditures in the following year as an indicator of the plan's financial condition. The reform package, as initially formulated, aimed to move that funding ratio to about five and keep it there over the long term — that is, the assets in the plan would be consistently about five times the following year's projected spending (Canada 1997).[11] In the projections below, I use that benchmark — a funding ratio of five (in 50 years' time) — as an indicator of prefunding sufficient to stabilize a health program's cost.

Complimentary Reforms

The C/QPP parallel makes a second note appropriate here. A mechanism for funding an obligation partially or completely in advance is easier to design when the obligation is fixed in money terms and when there is a tax base that is logically related to the objective.

In the C/QPP, the contribution history of each individual determines his or her eligibility for benefits. Although some public sector health-related obligations, such

9 The case for prefunding demographically driven increases in costs is also relatively straightforward because demographic changes are easier to predict in the short and medium run. than are other factors affecting costs, such as the difference between health-sector inflation and general inflation, or changes in medical technology..

10 The QPP uses 2050 as the terminal date for its projections (Quebec 2001, 33).

11 The QPP uses the funding ratio as an indicator of sustainability, but does not specify any particular numerical target (ibid).

as CPP and QPP disability payments, as well as workers' compensation indemnities and EI sickness benefits, are specified in money terms, most public health programs are delivered in kind, and do not have specific dollar figures attached to them. If prefunding works better in situations where specific dollar obligations are defined, it will make more sense if it accompanies other reforms that separate funding from purchase — a topic taken up following the specific illustrations of prefunding in the next section.

In the C/QPP, the programs' objective of replacing earnings from employment after a person retires or becomes disabled makes earnings from employment a logical base from which to fund the program. Some countries fund their health systems explicitly through payroll or income taxes. Some provinces levy various taxes that have the word "health" in their names.[12] But when the objective is to cover health spending in the future, there is no compelling logic behind the use of any particular tax base. For that reason, the illustrations of prefunding that follow show their requirements relative to several different tax bases. I take up the question of which of them is likeliest to be robust in the face of an aging population in the final section of the paper.

Partial Prefunding of Health Care: Three Illustrations

Prefunding will make more sense if it accompanies other reforms that separate funding from purchase.

To proceed to some specific examples, I begin by describing a model that allows some rough and ready calculations of the impact of aging on health spending in Canada under various circumstances. I then show how that model can calculate the level of prefunding that would stabilize the cost of three health programs:

- One in which Ottawa partially prefunds a "Seniors Health Grant" within the Canada Health and Social Transfer (CHST);
- One in which Alberta prefunds sufficiently to stabilize the cost of its entire health budget; and
- One in which Ontario prefunds sufficiently to stabilize the cost of a drug program that is strongly geared to age.

The focus of the results is the annual investment that would stabilize future costs. In each case, I express this amount in 2002 dollars and also in relation to four possible tax bases:

- The personal income tax base;
- The consumption tax base — for which I use the base for the goods and services tax/harmonized sales tax (GST);
- A base for a hypothetical general payroll tax;
- A dollar amount per person over age 15, which could be thought of as approximating the base for a very simple — with no modification for income, for example — individual health premium.

12 These labels are more misleading than enlightening, since the revenue they raise goes into consolidated funds from which most government programs draw.

The Model

The model I use is an updated and more developed version of the model in Robson (2001a).[13] It takes current distributions of health spending by age and sex (summarized in Table 1) and provincial population projections by age and sex (summarized in Table 2) as a basis for future estimates of health budgets. Combined with various assumptions about relative rates of growth of health utilization and overall productivity growth on the one hand and relative increases in health costs and general inflation on the other, the model uses current information to make educated guesses about the fiscal implications of future health budgets.[14]

Like the model with which Canada's Chief Actuary (see, for example, OCA 2001) investigates the outlook for Canada's public pension programs, this model employs some key shortcuts to facilitate the projections. Overall economic growth, for example, is driven by an assumption about output growth per person age 15-to-64, a traditional definition of working age.[15] It is not a behavioural model: its intent is to permit, on the basis of a reasonably small number of assumptions, projections of what will occur if present patterns of health service utilization and taxable activity persist as the structure of the population changes.

The model permits projections of what will occur if present patterns of health service utilization and taxable activity persist as the structure of the population changes.

Example 1: A Partially Prefunded Seniors Health Grant in the CHST

Because the federal government transfers sizeable amounts of money to the provinces and both Ottawa and the provincial governments regard most of the money paid under the CHST as providing support for health programs, the uneven pressure of aging on health budgets from province to province raises some awkward prospects.

If Ottawa comes under political pressure from provinces where health budgets are compressing other programs and forcing taxes up and responds by bailing them out with ad-hoc increases in CHST money, federal-provincial funding arrangements would become chronically unstable. Ad hoc increases would hamper planning, undermine provincial incentives for fiscal prudence and prompt provincial health ministers to focus their attention too much on Ottawa and too little on provincial taxpayers and patients.

One response to this problem would be to make part of federal-provincial transfers respond automatically to changes in the demographic profiles of the provinces. In a previous study (Robson 2001), I proposed dividing the CHST into two parts. One part would escalate with income per head and population. The other would be a "Seniors Health Grant," which would escalate not simply with

13 Readers are referred to Robson (2001a), especially the appendix, for more discussion of this model and caveats about its results.

14 Distributions of health spending by age and sex are from CIHI (2001). Data on personal taxable income, GST/HST payments, and payrolls are estimates based on SPSD/M data.

15 In all the scenarios in this paper, the assumption is that output per working-age person in every province grows in the future at the same rate it did nationally from 1980 to 2000: 1.65 percent annually. General inflation is assumed to be on the Bank of Canada's target: two percent annually.

Table 4: ***Stable Contribution Rate for Partial Prefunding of a Federal Seniors Health Grant: Various Scenarios***

	2002 Amount ($ bn)	As Share of PIT Base (%)	As Share of GST Base (%)	As Share of Payroll Tax Base (%)	Per Person 15+ ($)
5 % Rate of Return	9.1	1.4	3.0	1.6	350
6 % Rate of Return	8.0	1.2	2.6	1.4	310
7 % Rate of Return	7.0	1.1	2.3	1.3	280

Source: Author's calculations.

income per head, but also in line with the population age 65 and over. For illustrative purposes, I described a Seniors Health Grant set initially at $3000 per person age 65 and over in each province.[16] Being geared to growth in the elderly rather than the total population, a grant of that kind would provide more money to the provinces than a CHST escalating with overall GDP and it would provide the most help to the provinces where the pressure of aging was greatest.

Because a grant that escalated with growth in the senior population would add significantly but fairly predictably to the federal government's spending obligations over the long term, it is a good candidate for partial prefunding. Suppose that Ottawa established the Seniors Health Grant in 2003 and decided, starting at the end of 2002, to invest a portion of its surpluses in a fund that would, over time, cover the grant's incremental cost — the difference between the cost of the CHST including the grant and what the CHST would have been worth otherwise. To keep things simple, it is convenient to express the investment in the fund as a share of GDP and assume that each subsequent year's investment would rise as the economy grew. How big would an annual investment have to be to ensure that the financing cost of such a plan would be stable — that, over the next 50 years, the annual investment would remain a constant share of GDP?

Table 4 provides the answer for three different possible nominal rates of return.[17] The amounts are shown in 2002 dollars and are relative to the bases for the personal income tax, the GST, a national payroll tax, and in dollars per person age 15 and up. The dollar amounts are large. They would clearly constrain Ottawa's ability to raise other program spending or to cut taxes. But they are not wildly unrealistic — indeed, they are smaller than recent federal surpluses — and they might strike many Canadians as a reasonable price to pay to ensure additional federal support for the higher health budgets that an older population will demand in the future.

16 $3,000 is the largest round number that would yield a total Seniors Health Grant for Ontario (the province treated least generously by the CHST) that does not exceed the total CHST transfer to that province.

17 Because the Seniors Health Grant as described here is insensitive to actual provincial health spending, this example does not look at sensitivity to variations in utilization or costs.

Example 2: Partially Prefunding Total Health Expenditures in Alberta

Partial prefunding of a transfer such as the Seniors Health Grant would stabilize the costs related to only a portion of national health spending. Other revenue sources — mainly provincial income and consumption taxes — would still have to cover the bulk of future health-budget increases. Provinces that wished to insulate future tax rates from rising health costs would face a more difficult task.

Alberta makes an interesting test case for the feasibility of a stabilization account that would aim to cover the entire incremental cost of future health spending.

As noted already, the prospects differ from one province to the next, as a result of different demographic profiles and different patterns of current health spending (which in this mechanical model are assumed to prevail into the future). Since the implicit liability of future health costs predicted by the model is somewhat smaller in Alberta than in most other provinces (as Table 3 illustrated),[18] Alberta makes an interesting test case for the feasibility of a stabilization account that would aim to cover the entire incremental cost of future health spending as the federal fund just described would aim to cover the incremental cost of the Seniors Health Grant. The projections underlying Table 3 show that rising health costs will push Alberta's aggregate tax rates up by about one-third by the mid-2020s and by more than one-half by the 2030s. What would it cost Alberta to set up a fund that would turn that steady upward creep in tax rates into a once-for-all jump, followed by stable ones? As with the federal Seniors Health Grant, the setting is one in which the Alberta government begins putting money aside at the end of 2002 and starts covering incremental costs from the resulting fund in 2003. Also, similar to the federal example, the amount set aside is assumed to grow with GDP.

Before proceeding with the calculations, however, there is one difference from the federal example to address. The calculations for the Seniors Health Grant dealt with the partial prefunding of a pre-specified transfer payment. Calculations for a provincial health budget, by contrast, are sensitive not only to rates of return assumptions, but also to trends in utilization rates and relative costs in the health sector. Accordingly, Table 5 presents figures not just for the three rates of return shown earlier, but also for three different scenarios.

- A base scenario in which utilization rates per person of a given age and sex — that is, before allowing for the impact of demographic change — and costs rise at same rate as output per working-age person while health-care costs rise in line with inflation in the rest of the economy;
- A "restraint" scenario in which efficiency gains and other cost-containment efforts, similar to those of the 1990s, limit the growth in both age-adjusted utilization and in costs to 0.5 percentage points less than increases in age-adjusted output and inflation for a decade, after which both grow in line with the broader economy;[19]

18 Saskatchewan and Manitoba have smaller implicit liabilities. But the rapidly growing aboriginal population in both provinces means that these demographically based projections may understate the likely future increases in health spending and overstate the growth of the tax base relative to the situation in most other provinces, making them less attractive as showcases for a possible prefunding exercise.

19 The combination of growth in age-adjusted utilization that is 0.5 percentage points below growth in age-adjusted output and health-cost inflation that is 0.5 percentage points below general...

Table 5: ***Contribution Rate for a Health Stabilization Account in Alberta: Various Scenarios***

	2002 Amount ($ bn)	As Share of PIT Base (%)	As Share of GST Base (%)	As Share of Payroll Tax Base (%)	Per Person 15+ ($)
Restraint Scenario: *Both Age-Adjusted Utilization and Costs Lag Overall Economy by 0.5% Annually for a Decade*					
5 % Rate of Return	2.2	3.2	6.2	3.5	890
6 % Rate of Return	1.9	2.7	5.2	2.9	760
7 % Rate of Return	1.6	2.2	4.4	2.5	630
Base Scenario: *Age-Adjusted Utilization and Costs Grow in Line with Overall Economy*					
5 % Rate of Return	3.1	4.4	8.5	4.8	1,230
6 % Rate of Return	2.7	3.8	7.4	4.2	1,070
7 % Rate of Return	2.3	3.3	6.4	3.6	930
Big Spender Scenario: *Both Age-Adjusted Utilization and Costs Outpace Overall Economy by 0.5% Annually for a Decade*					
5 % Rate of Return	4.0	5.7	11.1	6.3	1,610
6 % Rate of Return	3.5	5.0	9.8	5.5	1,420
7 % Rate of Return	3.1	4.4	8.6	4.9	1,250

Source: Author's calculations.

- A "big spender" scenario in which current health-budget increases continue, supporting increases in both age-adjusted utilization and in costs 0.5 percentage points greater than age-adjusted output and inflation for a decade, after which both grow in line with the broader economy.

What might be seen as an overall base-case example — age-adjusted utilization and costs growing in line with the broader economy and a rate of return of six percent — reveals that if Alberta were to aim for a funding ratio of five after 50 years (similar to the objective in the CPP reforms), it would need to start setting aside an amount that, in the first year, would equal some $2.7 billion. This is a sizeable commitment, equal to about one-third of Alberta's current health budget. Relative to various tax bases, it amounts to almost four percent of current provincial taxable income, more than seven percent of the provincial GST base, and more than four percent of a hypothetical tax on all payrolls. Expressed as a premium per resident 15 years of age and up, it comes to a little more than $1,000. Other scenarios show amounts that vary positively with relative growth rates of health spending, and inversely with the assumed rate of return. The cost-containment cases are relatively benign; those in which costs escalate are more difficult.

The overall conclusion, however, is that it would be a prodigious undertaking for a province to seek, at a stroke, to stabilize its health costs over a prolonged

Note 19 - continued

...inflation would hold overall growth in health spending — before allowing for the impact of demographic change — to one percentage point below growth in nominal output. Although restraint of this magnitude may appear improbable, many provinces achieved as much during the 1990s and international experience supports the claims by many observers that more efficient allocation of resources could produce health outcomes of current quality at lower cost (see, for example, Blomqvist 2002).

Table 6: ***Contribution Rates for Provincial Health Stabilization Accounts: 6% Returns; Utilization & Costs Grow with GDP***

	2002 Amount ($ bn)	As Share of PIT Base (%)	As Share of GST Base (%)	As Share of Payroll Tax Base (%)	Per Person 15+ ($)
Newfoundland	0.7	8.3	15.7	10.6	1,460
PEI	0.1	4.5	6.7	5.6	890
Nova Scotia	0.8	4.7	9.3	5.8	970
New Brunswick	0.7	5.2	10.4	6.4	1,090
Quebec	6.1	4.4	9.3	5.2	1,000
Ontario	7.7	2.8	6.3	3.2	790
Manitoba	0.5	2.4	5.1	2.7	560
Saskatchewan	0.3	1.6	3.4	2.0	370
Alberta	2.7	3.8	7.4	4.2	1,070
BC	3.6	4.2	8.6	4.9	1,040

Source: Author's calculations.

period. Alberta is by no means the best placed in this respect, but it is far from the worst. The Atlantic provinces and Quebec would face similar per-person amounts for the necessary investments, but they have less lucrative tax bases from which to raise them. Ontario and, if these demographically based projections are reliable, Manitoba and Saskatchewan as well, face smaller, though still sizeable contributory commitments (Table 6).[20]

It would be a prodigious undertaking for a province to seek, at a stroke, to stabilize its health costs over a prolonged period.

It is interesting to speculate about whether putting a prefunding regime in place, even a less ambitious one than those described here, might help alert citizens and policymakers to the problems that will arise if health spending outpaces the overall economy, making measures to achieve greater cost-effectiveness easier to implement. Barring an extraordinary boom in resource revenues that could kick-start Alberta along a prefunding path of this sort, however, the size of the effort required to stabilize total health costs is so large that an actual experiment seems unlikely.

Example 3: Partially Prefunding the Ontario Drug Benefit

A less daunting and very logical candidate for partial prefunding would be a part of a provincial health budget that is relatively small and that is highly sensitive to age. The Ontario Drug Benefit (ODB) program matches these criteria: it represents about $2 billion in a total health budget of $26 billion and, because of the program's eligibility criteria, the average per-capita amount spent on the population age 65 and over is more than 18 times that spent on the younger population.

Projections using current age-sex distributions of spending under the same assumptions as were used for the base scenario above — that age-adjusted utilization increases at the same rate as GDP per working-age person and health

20 The restraint scenarios are better — with returns of six percent, Ontario would need an investment with an initial cost of $5.0 billion, Quebec would need one of $4.5 billion, and British Columbia would need one of $2.4 billion — but the overall conclusion still stands.

Table 7: ***Contribution Rate for an Ontario Drug Benefit Stabilization Account: Various Scenarios***

	2002 Amount ($ bn)	As Share of PIT Base (%)	As Share of GST Base (%)	As Share of Payroll Tax Base (%)	Per Person 15+ ($)
Restraint Scenario: Both Age-Adjusted Utilization and Costs Lag Overall Economy by 0.5% Annually for a Decade					
Rate of Return 5 %	0.8	0.3	0.7	0.3	90
Rate of Return 6 %	0.7	0.3	0.6	0.3	70
Rate of Return 7 %	0.6	0.2	0.5	0.3	60
Base Scenario: Age-Adjusted Utilization and Costs Grow in Line with Overall Economy					
Rate of Return 5 %	1.1	0.4	0.9	0.5	110
Rate of Return 6 %	1.0	0.3	0.8	0.4	100
Rate of Return 7 %	0.9	0.3	0.7	0.4	90
Big Spender Scenario: Both Age-Adjusted Utilization and Costs Outpace Overall Economy by 0.5% Annually for a Decade					
Rate of Return 5 %	1.4	0.5	1.1	0.6	140
Rate of Return 6 %	1.3	0.5	1.0	0.5	130
Rate of Return 7 %	1.1	0.4	0.9	0.5	110

Source: Author's calculations.

inflation is the same as general inflation — suggest that ODB spending will almost double its current share of provincial GDP (a little less than half of a percentage point) in 30 years' time. Expressed as an implicit unfunded liability, the ODB represents an obligation of some $29 billion.

The annual investment required to stabilize the cost of the ODB would start at about $1 billion.

Suppose, consistent with these illustrations, that Ontario were to start depositing money in an ODB Stabilization Fund at the end of 2002 and covering the incremental expenses of the program out of that fund starting in 2003. Again, the assumption is that the annual investment in the fund would grow over time with GDP. Table 7 shows the amounts that would be required under the same scenarios for ODB spending as were used for all Alberta health spending in the previous example.

If costs per person of a given age and sex rose at the same rate as productivity and general inflation and returns on invested funds average six percent — the same base case as above — the annual investment required to stabilize the cost of the ODB would start at about $1 billion. This amount represents about one-third of a percent of current provincial taxable income, about three-quarters of a percent of the provincial GST base, and four-tenths of a percent of the hypothetical provincial payroll tax base. Expressed as an annual investment per Ontarian age 15 and over, it starts at $100.

Partial Prefunding: Some Further Comments

These options raise a host of issues, such as timing of implementation, additional reforms that would complement partial prefunding and the appropriate sources for additional revenue required. This section offers a few brief comments on some of these issues.

Phased Implementation

The above illustrations show how programs intended to stabilize the funding of health services over a long period would work if they were implemented at the end of 2002 and moved immediately to the contribution rate that would be sustainable over time. This approach has the virtue of relative clarity; its weakness is that it describes a transition that would be highly disruptive.

A more realistic scenario, and again one that is familiar from the C/QPP reforms, would be a staged move to the sustainable level over, say, a five-year period. The resulting loss of prefunding time would mean a somewhat higher contribution rate over the long term, but the smoother transition would make the overall package less economically and politically challenging to implement.

One circumstance that might favour a quicker implementation of a stabilization plan, however, is worth highlighting. When federal surpluses were unexpectedly large in the late 1990s, Ottawa used a number of off-budget accounts, including a $3.5 billion prepayment of CHST money in 1999, to hide surpluses and reduce political pressure for tax cuts and spending increases that the finance minister feared would not be sustainable. Provincial governments also from time to time tuck surpluses into stabilization funds to reduce the pressure for easier fiscal policy. If the current better-than-expected performance of the Canadian economy is reflected in better-than-expected fiscal results, then using an unexpectedly large surplus to make a start-up injection into an arm's-length health-stabilization account would be a more defensible way of setting part of a surplus aside for a rainy (or less healthy) day.

Unexpectedly large budget surplus could provide start-up funds for health stabilization accounts.

Indemnities Versus In-Kind Services and the Social-Insurance Model

A second set of issues arises from the fact that provincial health programs fund services that are provided in kind. As was noted above, prefunding is a more compelling approach when obligations are specified in money terms, as is the case with pensions and the health-related indemnity payments that workers' compensation and disability programs provide. For this reason, prefunding could be seen as complementary to other health-care reforms that separate purchase from provision and attempt to impose "hard" budget constraints on various parts of the health system.[21]

The illustration of a partially prefunded Seniors Health Grant in the CHST brought some of these issues out explicitly, noting that a funding regime less disposed to *ad hoc* bailouts would create better incentives. Provincial governments seeking to impose more financial discipline on their regional health authorities or other recipients of funds might find it helpful to establish health stabilization funds with predictable distribution schedules that would be (if only marginally) less susceptible to pressure for mid- and end-of-year top-ups.

This type of approach is consistent with a view of publicly funded health care that is closer to a social-insurance model than the currently dominant view in

21 Blomqvist (2002) advocates several methods of creating purchaser-provider splits in Canadian health care.

Canada that publicly funded health care ought to be almost entirely redistributive. Most countries implicitly or explicitly treat health programs in the same way that they (and Canada) treat public pension and income-support programs: there is a mandatory self-insurance pillar (C/QPP and EI) alongside the general-tax-funded safety net (OAS/GIS and social assistance).[22] Governments may oblige their citizens to buy insurance from competing private insurers, or they may direct them to contribute to a state program through a special levy. From this perspective, prefunding of a forecast *increase* in the share of national income absorbed by a program would look eccentric; the more natural approach would be to seek a degree of prefunding of the program as a whole.

To make this point more concrete, suppose that Ontario decided to partially prefund the ODB, and at the same time opted for an explicit social-insurance fund that would cover, not just the incremental costs of the program above a 2002 baseline, but the program's entire cost. Table 8 shows the stable-rate annual contribution that would be required to prefund the entire ODB using the same targets and assumptions that were used for Alberta's health budget and the ODB stabilization fund earlier.[23]

For consistency's sake, Table 8 shows the amounts in relation to personal taxable income, the provincial GST base, and a payroll tax base. Since one of the possible attractions of moving the plan to an explicit social-insurance basis would be the opening it would create for a levy on a base different from those currently in use for provincial taxation, the amounts per person — a rough estimate of the individual "premium" cost of such a plan — are especially interesting in this context.

Prefunding would constitute a major, credible commitment by government to citizens that future fiscal strains will not put their benefits at risk.

Because the benchmark targets for judging stability in Table 8 have a larger denominator of spending in their funding ratios, the amounts required to hit the targets do not vary as much from one scenario to another. The message from Table 8 is therefore readily summarized: the annual investment required to cover the ODB's current spending and prefund its future spending sufficiently to stabilize its overall costs would be somewhere in excess of $3 billion in 2002 dollars, or about $350 per Ontarian age 15 and up.

Whether this is a large amount is a matter of perspective. The difference between it and the smaller amounts shown in Table 7 represents revenue that would be available for cuts in other taxes. Importantly, payments of that size would constitute a major, credible commitment by government to citizens that future fiscal strains will not put their benefits at risk. Similar logic would apply to other programs that are heavily geared to age and create concern about long-term sustainability, such as long-term care. Indeed, if the obligations of such plans were redefined to provide for fixed reimbursements of costs, as would be consistent

22 For an exploration of the parallels and interactions between social insurance and safety-net programs affecting pensions and health care in Canada, see Robson (2001b).

23 It is worth re-emphasizing that the assumptions about utilization and the economy in these projections (that they grows in line with each other in the base scenario, for example) are before allowing for the impact of demographic change on either variable. The changing age structure of the population adds a further 1.7 percent annually to growth of ODB spending above what increases in utilization and cost would produce otherwise.

Table 8: ***Contribution Rate for a Stabilized Ontario Drug Benefit Plan: Various Scenarios***

	2002 Amount ($ bn)	As Share of PIT Base (%)	As Share of GST Base (%)	As Share of Payroll Tax Base (%)	Per Person 15+ ($)
Restraint Scenario: Both Age-Adjusted Utilization and Costs Lag Overall Economy by 0.5% Annually for a Decade					
5 % Rate of Return	3.2	1.2	2.6	1.3	330
6 % Rate of Return	3.0	1.1	2.5	1.3	310
7 % Rate of Return	2.9	1.0	2.4	1.2	300
Base Scenario: Age-Adjusted Utilization and Costs Grow in Line with Overall Economy					
5 % Rate of Return	3.5	1.3	2.9	1.4	360
6 % Rate of Return	3.3	1.2	2.7	1.4	340
7 % Rate of Return	3.2	1.1	2.6	1.3	330
Big Spender Scenario: Both Age-Adjusted Utilization and Costs Outpace Overall Economy by 0.5% Annually for a Decade					
5 % Rate of Return	3.8	1.4	3.1	1.6	390
6 % Rate of Return	3.6	1.3	3.0	1.5	370
7 % Rate of Return	3.5	1.2	2.8	1.4	350

Source: Author's calculations.

Formally prefunding certain programs would curb commitments made in response to short-term pressures that would, over time, prove difficult or impossible to fulfil.

with other moves toward separating purchasing from provision,[24] a government might choose to move stabilized drug or long-term care benefit plans off-budget and make the periodic adjustment of contribution rates as circumstances change, on the advice of an arm's-length actuarial advisor.

A shift toward more explicit social-insurance models in Canada would be controversial, partly because social-insurance programs have features such as deductibles, co-payments and limits that address moral hazard. Partially prefunded health programs that made payments directly to individuals or their agents and left decisions about how to spend that money and the responsibility for covering additional charges up to those individuals, would be consistent with a social-insurance motive — but the current Canadian health-care debate gives comparatively little attention to this motive.

Even when in-kind benefits rather than money payments are at issue, formally prefunding certain programs may have a further benefit worth noting. Calculating liabilities associated with future spending commitments promotes clearer thinking about public programs. Quantifying, even with uncertainty, the continuing implications of enhancements — the establishment of comprehensive pharmacare, for example — would provide voters with a better account of the long-term costs of today's actions. The recent CPP reforms required that future benefit enrichments be covered by immediate premium increases large enough to stabilize their cost over the long haul. Similar provisions in health care would curb commitments

24 One can imagine, for example, indemnity payments from a drug plan becoming part of the capitation reimbursement of general practitioners, or being integrated into a system involving more individual control, such as a refundable tax credit for health costs or a medical saving account.

made in response to short-term pressures that would, over time, prove difficult or impossible to fulfil.

Which Taxes to Raise (or Not Cut)

The examples above scaled the investments in stabilization accounts in various ways, including percentages of the personal income-tax base, percentages of the GST base and percentages of a hypothetical payroll tax base. Since personal income and consumption taxes are the dominant sources of government revenue in Canada, the first two tax bases seem like logical candidates for increases or foregone cuts if governments decide to partially prefund health programs through their regular budgets.[25] The search for a new tax base and an uncritical borrowing from social-insurance models abroad might make a payroll-tax base attractive as a source of additional funds. In choosing which of these bases — or another, such as per-person premiums — is the most attractive source for future health-care spending, at least three sets of considerations merit a comment.

One set is familiar from many discussions about public finance: the long-debated tradeoffs between economic efficiency and fairness in its various flavours.[26] Efficiency considerations generally favour taxes that do not discourage saving over those that do, which would make either consumption or payroll taxes preferable to income taxes. Fairness is a heading covering far too complicated a set of topics for a brief summary: those who favour treating individuals in like circumstances similarly could make a reasonable case for either consumption or income taxes; those giving priority to redistributive objectives would favour income taxes over consumption taxes; payroll taxes are not obviously attractive to either group. Forced to make a call, I would argue for consumption taxes, both on efficiency grounds — the ability of Canada's provincial and national economies to generate wealth over the long term is the single most important factor that will determine the quantity and quality of future health services — and because, considered over a lifetime, consumption expenditure is intimately linked to ability to pay.[27]

The ability of Canada's provincial and national economies to generate wealth over the long term is the single most important factor that will determine the quantity and quality of future health services.

A second key set of considerations has to do with the robustness of tax bases in the face of demographic change. Because it is difficult to impute consumption spending within families, strong assertions about the age-distribution of the consumption tax burden among Canadians would be rash. The data that are available, however, indicate that, just as the use of health services varies considerably by age, so does liability for different types of taxes (Table 9). The

25 As noted already, a social-insurance model would not favour either of these revenue sources.

26 Ease of administration and compliance is also a criterion commonly used to judge taxes and many would argue that visibility or transparency should also be considered. Administration and compliance costs are not pressing concerns, however, if incremental changes in tax rates are under discussion. Considerations of visibility or transparency would not support the personal income tax, consumption taxes or payroll taxes as sources of financing for health care.

27 Mintz (2001) and Mintz and Wilson (2001) advocate taxes on consumption over taxes on income for reasons of both efficiency and fairness. Kneller, Bleaney and Gemmel (1999) provide some cross-country evidence on the effects of different types of taxes and spending programs on growth, evidence that favours consumption over income taxes.

Table 9: ***Provincial Tax Bases by Age, 2001***

	Personal Income Tax			*Goods and Services Tax*			Payroll Tax		
	0–64	**65+**	**65+ relative to 0–64**	**0–64**	**65+**	**65+ relative to 0–64**	**0–64**	**65+**	**65+ relative to 0–64**
	($)	*($)*	*(Ratio)*	*($)*	*($)*	*(Ratio)*	*($)*	*($)*	*(Ratio)*
Canada	25,700	19,700	0.77	11,900	9,800	0.82	25,000	2,000	0.08
Newfoundland	17,600	12,300	0.70	9,000	8,300	0.92	15,300	1,200	0.08
PEI	19,700	15,800	0.80	13,000	11,900	0.92	17,900	1,800	0.10
Nova Scotia	21,000	16,100	0.77	10,500	9,200	0.88	19,400	900	0.05
New Brunswick	21,000	16,100	0.77	10,400	9,100	0.88	19,300	1,300	0.07
Quebec	22,700	16,700	0.74	10,600	8,800	0.83	21,900	1,300	0.06
Ontario	28,500	22,300	0.78	12,500	10,200	0.82	28,000	2,400	0.09
Manitoba	24,200	20,400	0.84	11,300	9,700	0.86	24,100	2,300	0.10
Saskatchewan	23,000	17,900	0.78	10,900	9,300	0.85	22,100	2,000	0.09
Alberta	29,100	20,300	0.70	14,700	11,900	0.81	28,900	2,200	0.08
BC	24,900	20,000	0.80	12,000	10,100	0.84	23,900	2,200	0.09

Source: Statistics Canada, SPSD/M; author's calculations.

population age 65 and over faces an average payroll tax liability per head that is less than ten percent of the liability faced by the population 15-to-64. The corresponding figure for the personal income tax is 77 percent, while the figure for the GST is 82 percent. Per-person levies that are not related to economic activity, of course, would not vary with age.

The funding source that would be most robust in the face of an aging and less economically active population would be a "premium" levied on each member of the population.

Of the various funding sources canvassed in this paper, then, the one that would be most robust in the face of an aging and less economically active population would be a "premium" levied on each member of the population. The next strongest source would be a consumption tax. Slightly less lucrative over time than a consumption tax would be the income tax. By this criterion, the payroll tax fares worst of all.

Finally, there is a question of credibility. As noted already, the willingness of Canadians to pay any health-related levy is likely to depend largely on their confidence that the purpose for which the money is notionally collected is the purpose to which it will actually be put. Incremental adjustments in personal income or consumption taxes, even if accompanied by the establishment of a dedicated fund, cannot readily be earmarked in this way. Although a new payroll charge could be so dedicated, the lack of logical connection between payrolls and health funding (and the fact that some provinces already have payroll levies with "health" labels that simply go into consolidated revenue) might harm the credibility of such a tax. A separate health premium would probably be most readily perceived as a credibly dedicated levy.

Conclusion

To sum up, the aging of Canada's population does present a challenge to the sustainability of publicly funded health-care. The elderly tend to be heavier users of health services and a relatively slow-growing working-age population will reduce the future growth rate of the economy and the tax base. Partial prefunding

of health programs to spread their higher future costs more evenly across generations is an attractive way of addressing this challenge.

The simulations presented here suggest that prefunding on a scale sufficient to stabilize the cost of an entire provincial health budget over a period of decades would require annual investments that are dauntingly large from both an economic and a political point of view. More targeted approaches — partial prefunding by the federal government of a Seniors Health Grant in the CHST, for example, or of a provincial pharmacare program, such as the Ontario Drug Benefit — would be more manageable.

Partial prefunding is more attractive if it complements other reforms that make future payments by the relevant account more predictable. Such reforms would involve the separation of funding from provision — as is the case with federal-provincial transfers, for example — either within the public system or by making indemnity payments directly to individuals. Finally, reforms with an explicit social-insurance justification could justify the establishment of a new funding source, of which individual premiums are the source that is both most logical and most robust in the face of an aging population. If prefunding were to occur within regular government budgets, on the other hand, increases or foregone cuts in consumption taxes make more sense than increases or foregone cuts in income or payroll taxes, both because consumption taxes are less harmful to economic growth and because the consumption tax base is less subject to erosion as the population ages.

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